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Technical
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Paper



**The 1993 Tully Farms Road Landslide – An Update
and Hydrogeology of a Natural, Brine-Filled Aquifer
in the Onondaga Trough, near Syracuse, New York**

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THE 1993 TULLY FARMS ROAD LANDSLIDE – An update

AND

HYDROGEOLOGY OF A NATURAL, BRINE-FILLED AQUIFER IN THE
ONONDAGA TROUGH, NEAR SYRACUSE, NEW YORK

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FOREWARD

In 1993, the Solution Mining Research Institute (SMRI) held its Spring Annual Technical meeting in Syracuse, N.Y., in which the U.S. Geological Survey (USGS) participated in a fieldtrip to the salt-solution-mining field at the upstream (southern) end of the 25-mile long Tully/Onondaga valley. The fieldtrip included a visit to the “Tully Valley mudboils” an area where volcano-like, artesian-pressured features discharge sediment-laden water, of fresh to brackish water quality to the floor of the valley. Several minutes after the departure of the SMRI bus from the mudboil area, New York’s largest landslide in the last 70+ years buried 1,400 feet of roadway, destroyed three homes, and severed all utilities in that part of the valley. Several members of the fieldtrip phoned during the next few days to ask why we had not stopped at the landslide. In response to this interest and the fact that SMRI is returning to Syracuse in 2005, USGS compiled this paper to (1) provide information on the geology of central New York, (2) summarize results of studies conducted by USGS since 1993 in the Onondaga Trough (valley), and (3) serve as a fieldtrip guidebook for a return trip to the Tully Valley to inspect the landslide that SMRI just missed (luckily) during their visit of April, 1993.

ABSTRACT

Continuing efforts to improve water quality in Onondaga Lake and its tributaries require knowledge of how salty water from a naturally brine-filled aquifer in the Onondaga Trough affects the water quality of Onondaga Lake, 15-miles downstream (north) from the mudboil and landslide areas. The city of Syracuse, locally known as “The Salt City,” was built around the salt springs that issued from the brine-filled aquifer, but little is known about the source of

the brine nor its movement within the glacial sediments that partly fill the Onondaga Trough nor the interaction between the aquifer and the lake.

This paper contains two sections. The first provides an update on the 1993 Tully Valley landslide and a comparison of the 1993 slide with an adjacent landslide that occurred about 7,000 years ago. The second part summarizes initial data collection and analysis efforts in the Onondaga Trough since 1993, and presents results of initial hydrogeologic, geographic, and chemical analyses that can be used in the development of a numerical ground-water-flow model of the aquifer system.

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